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THE INERTIAL NAVIGATION SYSTEM,(U)
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THE INERTIAL NAVIGATION SYSTEM

by

Ren Sicong

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The Inertial Navigation System

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The inertial navigation system is a system that depends merely upon the instruments and eqipment carried by itself to measure the acceleration of an aircraft and through a computer to compute such navigation information as the speed and distance of an aircraft so as to determine the position of the aircraft. It is composed mainly of inertial measuring unit, computer, control and display units. The system has been widely used in the activities of aviation, maritime navigation and spaceflight.

One day in July of 1958, the US "Nautilus" the first nuclear powered submarine in the world anchored in Pearl Harbor starts to sail and its mission is to pass through North Pole to make an unprecedented exploring voyage. From the vicinity of Ouhu Island it submerges sailing on northward by a speed of 20 knots per hour. Passing through Aleutian Islands and Bering Strait, it reaches Chukchi Sea. Keeping away from the tall icebergs, it turns to sail eastward to enter Barrow from Barrow

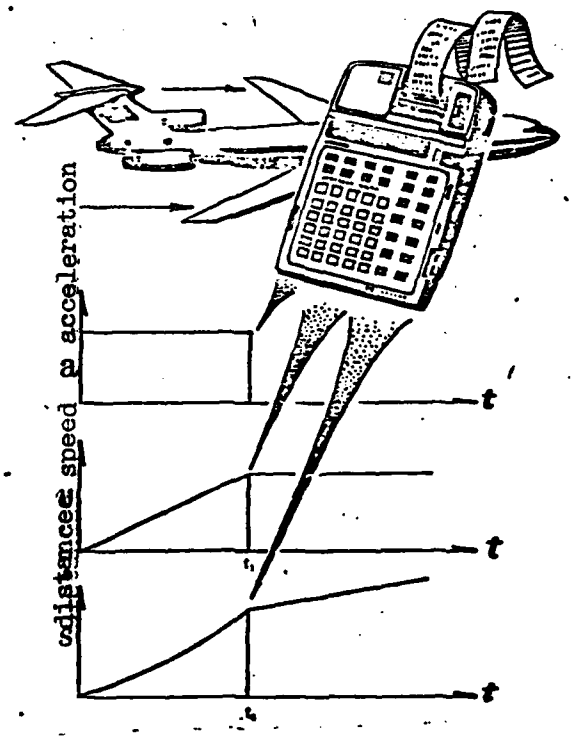

Figure 1 Diagram of acceleration speed and distance when taking off

Point and then it sails straightly northward to reach the top point of the earth--the North pole. It is not a special world under the heavy ice of which the thickness is several thousnad meters. It is almost like on the surface of the earth, there are high mountains, deep abyss and cliffs, one coneecting with the other. When "Nautilus" enters this labyrinth on the bed of of the sea, isolating itself from the rest of the world, the result would be unthinkable if there is no reliable instruments to tell directions and to determine its position.